

Appl. No. 10/675,034
Amdt. dated Sept. 15, 2005
Reply to Office Action of June 16, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently amended) A dispenser for dispensing metered amounts of a viscous liquid, comprising:

- a liquid reservoir;
- a pump chamber having a reservoir opening in communication with the reservoir;
- a pump mechanism configured with the pump chamber, the pump mechanism comprising a pump cylinder slidably disposed and retained in the pump chamber, the pump cylinder having a dispensing channel disposed therethrough, wherein the pump cylinder is movable to a locking position within the pump chamber; and
- a check valve mechanism operably disposed and retained in the reservoir opening; wherein upon movement of the pump cylinder to the locking position the pump cylinder engages and releaseably attaches to the check valve mechanism, seals the check valve mechanism against the reservoir opening to prevent flow from the reservoir to the pump chamber, and seals the dispensing channel against the check valve mechanism to prevent flow from the pump chamber to the dispensing channel.

Claim 2 (Original) The dispenser as in claim 1, further comprising an actuator operably connected with the pump mechanism.

Claim 3 (Original) The dispenser as in claim 1, further comprising a biasing element disposed to bias the pump cylinder to a rest position.

Claim 4 (Original) The dispenser as in claim 1, wherein the pump cylinder comprises a radial extension member axially aligned with and extending the length of the dispensing channel, and further wherein upon movement of the pump cylinder to the locking position the radial extension member engages the check valve mechanism, seals the check valve mechanism against the reservoir opening to prevent flow from the reservoir to the pump chamber, and seals the dispensing channel against the check valve mechanism to prevent flow from the pump chamber to the dispensing channel.

Claim 5 (Original) The dispenser as in claim 4, wherein the check valve mechanism comprises an elongated shuttle valve slidable within the reservoir opening in the pump chamber.

Appl. No. 10/875,034
Amdt. dated Sept. 15, 2005
Reply to Office Action of June 16, 2005

- Claim 6 (Original) The dispenser as in claim 5, wherein the elongated shuttle valve is axially aligned with the radial extension member.
- Claim 7 (Original) The dispenser as in claim 6, wherein the radial extension member is capable of releasably attaching to the elongated shuttle valve.
- Claim 8 (Original) The dispenser as in claim 7, wherein the shuttle valve comprises at least one retaining member capable of preventing the shuttle valve from being removed from the reservoir opening.
- Claim 9 (Original) The dispenser as in claim 4, wherein the radial extension member is tapered to permit the radial extension member to fit over and seal against the check valve mechanism.
- Claim 10 (Original) The dispenser as in claim 6, wherein the elongated shuttle valve comprises a cap having a radial beveled surface to facilitate sealing engagement of the cap with the radial extension member.
- Claim 11 (Currently amended) A dosing pump apparatus for dispensing metered amounts of a viscous liquid from a reservoir, the apparatus comprising:
- a pump chamber having an opening therein in liquid communication with a liquid reservoir;
 - a dispensing orifice defined in the pump chamber;
 - a pump mechanism configured with the pump chamber to pressurize liquid within the pump chamber upon actuation of the pump mechanism; and
 - a check valve mechanism operably disposed and retained in the pump chamber opening and movable upon actuation of the pump mechanism to seal the opening and movable upon release of the pump mechanism to unseal the opening so that a metered amount of liquid flows automatically through the opening into the pump chamber;
- wherein the pump mechanism is movable to a locking position; and
- further wherein upon movement of the pump mechanism to the locking position the pump mechanism engages and releasably attaches to the check valve mechanism, seals the check valve mechanism against the reservoir opening to prevent flow from the reservoir to the pump chamber and seals the dispensing orifice to prevent flow from the pump chamber to the dispensing orifice.
- Claim 12 (Original) The pump apparatus as in claim 11, wherein the pump mechanism comprises a pump cylinder slidably disposed and retained in the pump chamber and biased

Appl. No. 10/675,034
Amdt. dated Sept. 15, 2005
Reply to Office Action of June 16, 2005

to a rest position, the pump cylinder further comprising a delivery end extending through a front wall of the pump chamber and having a dispensing channel disposed therethrough, the dispensing orifice disposed at a forward end of the dispensing channel.

Claim 13 (Currently amended) The pump apparatus as in claim 12, wherein the pump cylinder comprises a radial extension member axially aligned with and extending the length of the dispensing channel, and further wherein upon movement of the pump cylinder to the locking position the radial extension member engages and releaseably attaches to the check valve mechanism, seals the check valve mechanism against the reservoir opening to prevent flow from the reservoir to the pump chamber, and seals the dispensing channel against the check valve mechanism to prevent flow from the pump chamber to the dispensing channel.

Claim 14 (Currently amended) The pump apparatus as in claim [11] 13, wherein the check valve mechanism comprises an elongated shuttle valve slidable within the opening in the pump chamber.

Claim 15 (Original) The pump apparatus as in claim 14, wherein the elongated shuttle valve is axially aligned with the radial extension member.

Claim 16 (Original) The pump apparatus as in claim 14, wherein the radial extension member is capable of releasably attaching to the elongated shuttle valve.

Claim 17 (Original) The pump apparatus as in claim 16, wherein the shuttle valve comprises at least one retaining member capable of preventing the shuttle valve from being removed from the opening.

Claim 18 (Original) The pump apparatus as in claim 13, wherein the radial extension member is tapered to permit the radial extension member to fit over and seal against the check valve mechanism.

Claim 19 (Original) The pump apparatus as in claim 14, wherein the elongated shuttle valve comprises a cap having a radial beveled surface to facilitate sealing engagement of the cap with the radial extension member.

Claim 20 (Currently amended) A dispenser for dispensing metered amounts of a viscous liquid, comprising:
 a liquid reservoir;
 a pump chamber having a reservoir opening in communication with the reservoir;

Appl. No. 10/675,034
Amdt. dated Sept. 15, 2005
Reply to Office Action of June 16, 2005

a pump mechanism configured with the pump chamber, the pump mechanism comprising a pump cylinder slidably disposed and retained in the pump chamber, the pump cylinder comprising a delivery end extending through a front wall of the pump chamber and having a dispensing channel disposed therethrough, the pump cylinder further comprising a radial extension member axially aligned with and extending the length of the dispensing channel, wherein the pump cylinder is movable from a rest position to pressurize liquid within the pump chamber;

a dispensing orifice disposed at a forward end of the dispensing channel; and
an elongated shuttle valve operably disposed and retained in the reservoir opening, upon actuation of the pump mechanism the shuttle valve being movable to seal the reservoir opening and upon release of the pump mechanism the shuttle valve being movable to unseal the reservoir opening wherein a metered amount of viscous liquid flows automatically from the reservoir into the pump chamber for dispensing upon the next subsequent actuation of the pump mechanism;

wherein the radial extension member is capable of engaging and releasably attaching to the elongated shuttle valve; and

wherein the pump cylinder is movable to a locking position; and
further wherein upon movement of the pump cylinder to the locking position the radial extension member engages the shuttle valve, seals the shuttle valve against the reservoir opening to prevent flow from the reservoir to the pump chamber, and seals the dispensing channel against the shuttle valve to prevent flow from the pump chamber to the dispensing channel.

Claim 21 (Cancelled)

Claim 22 (Currently amended) The dispenser as in claim [21] 20, wherein the shuttle valve comprises at least one retaining member capable of preventing the shuttle valve from being removed from the reservoir opening.

Claim 23 (Original) The dispenser as in claim 20, wherein the radial extension member is tapered to permit the radial extension member to fit over and seal against the shuttle valve.

Claim 24 (Original) The dispenser as in claim 20, wherein the elongated shuttle valve comprises a cap having a radial beveled surface to facilitate sealing engagement of the cap with the radial extension member.